(these comments received from Terry Spragg during the June 22, 2005 CWP Update workshop in Los Angeles)

AMENDMENTS SUGGESTED FOR
THE CALIFORNIA WATER PLAN RELATED TO
WATERBAG TECHNOLOGY

(1) In Volume 1, Strategic Plan, Chapter 2, "A Framework For Action," Under the headline "Diversify Regional Water Portfolios," page 2-7 paragraph 3, add (see bold italics)

> "…support innovative water technologies such as desalination ***and waterbag transport/storage technology*** to reduce the impacts of droughts…"

(2) Under the headline, Increase Regional Drought Preparedness," page 2-23, add (see bold italics)

> "Evaluate and implement strategies that among other benefits, would reduce the impacts of drought in the region…examples of such strategies include…ocean and brackish desalination ***and waterbag transport/storage technology."***

(3) In Volume 2, Introduction- Resource Management Strategies, page 1-1, in the chart titled "Resource Management Strategies," waterbag technology is listed under "Other Resource Management Strategies" as the last item on this list as, "*and transoceanic water bags."*

This reference to waterbag technology should be removed from the classification of "Other Resource Management Strategies" and be listed separately as two strategies, one as

"Waterbag transport/storage technology"

and as a second listing as,

"Waterbag Emergency Option in the Delta"

These listings should follow under the listing," Urban water use efficiency."

(4) In Volume 2, page 1-4, under the Table 1-1, "Strategy Summary Table," under the heading, "Increase Water Supply, after the listing "Surface Storage- Regional/Local," add ***"Waterbag Transport/Storage Technology"*** and place a bold dot under the following headings related to the above waterbag references:

(1) Provide Water Supply Benefit
(2) Improve Drought Preparedness
(3) Improve Water Quality
(4) Operational Flex and Efficiency
(5) Environmental Benefits
(6) Energy Benefits
(7) Reduce Groundwater Overdraft

Because of the wide variety of options available for implementing waterbag technology in California it is not possible to estimate a "Cumulative Cost of Option by 2030" for waterbag technology at this time.

(5) On page 1-5, Volume 2, ***include waterbag technology in the graph*** on this page to indicate a ***low estimate*** for waterbag technology to be ***0.5 MAF per year*** and a high estimate to be ***2.0 MAF per year.***

Spragg & Associates has submitted documentation to DWR to substantiate these numbers and will submit further documentation on request. It should be understood that once the waterbag transport system begins to prove its reliability over time it is simply a matter of adding more waterbag to the trains in the system that will be transporting water from a variety of sources from within and outside the State of California. It is easy to verify that by the year 2030, waterbag technology could add over 3 MAF per year to the California water supply from sources in Washington State and Alaska that have already expressed an interest in considering this export option. Documentation of the potential availability of these water sources is available on request.

(6) Volume 2, Chapter 6, includes a separate Chapter on desalination. Many of the issues addressed and questions raised in this Chapter are issues and questions that are also directly applicable to waterbag transport/storage technology. It is requested that the California Water Plan Update add a ***Chapter 7, titled, "Waterbag Transport/Storage Technology."***

Spragg & Associates can document that the economics and environmental advantages for using waterbag technology are significantly superior to the economics and environmental issues associated with seawater desalination.

There is a precedent for waterbag technology to be included a long-range water plan in the State of California.

The City of San Diego Long Range Water Resources Plan (2002-2030), Adopted December 9, 2002, included references to waterbag technology (referred to as “Marine Transport”), and gave waterbag technology equal status in this report to desalination, water reclamation, water conservation, etc. on pages ES-3, ES-5, ES-6, ES-8, ES-9, 3-19, 3-20, 3-21, 3-29, 5-3, 5-4, 5-6, 6-9, 6-16, 6-17, 6-19, 7-2, and 8-2.

It is interesting to note that The City of San Diego Long Range Water Resources Plan, in addition to giving equal status to waterbag technology in their Plan, also included a three-page analysis of waterbag technology in this plan (See pages 3-19 to 3-21). This is the type of analysis that it is suggested that should be included in the State Water Plan in Item (6) above.

Why does the City of San Diego Long Range Water Resources Plan give an equally weighted and more thorough analysis of waterbag technology than does the State Water Plan?

It is hoped that this discrepancy will be corrected and that the suggestions described above related to elevating the status of waterbag technology and including a more detailed analysis of waterbag technology in the State Water Plan would be taken into consideration.

CORRECTIONS SUGGESTED TO BE MADE IN THE STATE WATER PLAN THAT REFER TO WATERBAG TECHNOLOGY

Over the past decade numerous documents (see attachments to Spragg & Associates State Water Plan Proposal) have been submitted to the Department of Water Resources, various California water agencies, and a California Administrative Law Judge at the California Public Utilities Commission, related to the demonstration of waterbag technology in the State of California and the economic, environmental and political advantages that waterbag technology can offer the State of California.

One of the most recent documents submitted to the DWR were letters attached to a presentation delivered to Curt Schmutte, Chief, Levees and North Delta Branch, dated October 4 and October 7, 2004. These letters and the appropriate documents are attached to this report.

It is requested that waterbag technology be given an equal and fair hearing as is being given to seawater desalination and other proposals currently being considered for financial support by the State of California.

In Volume 2, Chapter 26, "Other Resource Management Strategies" under the headline, "Transoceanic Water Bags," this section of this report makes several incorrect and misleading statements. It is requested that the following comments be addressed and changed to reflect a more accurate and appropriate review of waterbag technology.

(1) *"Towing icebergs (frozen fresh water) is a variation of towing water bags."*

This is incorrect. This statement demonstrates a lack of understanding of waterbag technology by certain DWR officials. Spragg & Associates would be happy to discuss waterbag technology in detail with DWR officials. This request has been made of DWR officials on several occasions over the past decade, but to date we have not received an invitation to do so.

(2) *"…there have been several **proposals** to implement this [waterbag] technology throughout the world."*

This is incorrect. Waterbag technology is an operating technology and has been so for over six years. Waterbag technology has been successfully operating in Greece for over six years. Waterbag technology was successfully operating between Turkey and Northern Cyprus. Waterbag technology is not just in the ***"proposal"*** stage.

Waterbag technology is an operational fact.

(3) The waterbag proposal referred to in the DWR analysis of waterbag transport plan proposed by Alaska Water using water from the Alblon and Gualala Rivers was foolish and correctly rejected by the local community. It was an example of a company controlled by foreign interests with no experience in California political issues trying to gain control of a California water resource without obtaining approval from the local community in which this water resource transfer was proposed, and then trying to sell this water to the highest bidder.

Spragg & Associates had no part in this proposal and agrees with those who objected to this proposal.

It is the position of Spragg & Associates that we are only offering a technology that is able to transport water from a location of potential supply to a location of potential demand. All negotiations for the cost of this water supply at dockside should be between the water agency willing to sell this water and the agency willing to purchase this water, just as is the case in all current water transfers as described in Volume 2, Chapter 23, "Water Transfers," in the State Water Plan. Spragg & Associates is only offering a transport mechanism to move water from point A to point B (a flexible and modular pipeline through the ocean as compared to a pipeline over land), after all other water transfer issues have been addressed and agreed upon by a willing seller and a willing buyer as is described in Chapter 23 of the State Water Plan.

(4) The State Water Plan failed to mention a potential water supply for both northern and southern California water agencies that may be available from the Humboldt Bay Municipal Water District that could use waterbag technology. There is debate in the HBMWD community about whether the HBMWD should enter into a water transfer agreement. Because of the closing of the Simpson Pulp Mill in Humboldt Bay, the HBMWD has lost almost 40% of its water sales revenues, and this has had a negative effect on HBMWD customers and revenues. The HBMWD has also had to adjust its water rates with the remaining pulp mill, which has also been subject to close, and which has the potential to reduce HBMWD water sales by a devastating 80%. The HBMWD has yet to make a determination as to whether they would enter into a water sales agreement for transferring water out of its district. It should be pointed out that for over 40 years the HBMWD diverted 20 to 30 MGD from the Mad River to the Simpson Pulp Mill in order to operate this plant, and there was no reported or confirmed harm to the Mad River environment as a result of this diversion. At this time, no water district in the State of California has approached the HBMWD about the possibility of purchasing water for marine transport.

(5) The statement that *"no published cost estimates [for implementing waterbag technology] have been found as of release of this draft,"* is misleading.

Many of the documents referred to in this report, and other documents submitted to the DWR over the past decade have contained many detailed economic studies and analyses. Spragg & Associates has attached some of these economic studies to this report and will submit additional economic information on request.

(6) ***Third Party Impacts*** resulting from the implementation of waterbag technology are no different than third party impacts for other water transfers listed in Volume 2, Chapter 5, "Conveyance," and Chapter 23, "Water Transfers." A thorough analysis of waterbag technology will document that waterbag transfers and conveyance issues can be more economically viable, less contentious, and have less effect on the environment than other water transfers and water conveyance plans currently being proposed and under review by the DWR, such as crop idling, surface water deliveries that affect fish populations, and the depletion of groundwater aquifers due to pumping.

(7) The statements that *"…most diversions [for using waterbag technology] take place near the mouth of a source river,"* and that, *"most facilities would need to be built to convey the water from a significant distance upstream,"* are misleading.

The environmental impacts of using waterbag technology are misrepresented in the State Water Plan. For example, as is mentioned above, the infrastructure to use water from the Mad River is already in place and provides a good example of how diversions for waterbag applications can take place. In addition, the waterbag emergency proposal for the Delta would have no application to the above environmental concerns. It has yet to be established what, if any, environmental impacts would occur by diverting a selected amount of water from a river just above the area where it runs into the ocean. The Mad River diversion for the HBMWD has been operating for over 40 years with no negative environmental impacts. There are other areas in Washington State and in Alaska that already have diversion infrastructures in place, such as from closed pulp mills in Washington State, that have experienced no negative environmental impacts over many decades of water diversions.

It is interesting to note that the California Water Plan indicates that the North Coast Hydrologic Region is,

"…the most water-abundant area of California, producing about 41% of the State's total natural runoff…about 29 million acre-feet per year."

Waterbag technology offers the most economic, environmental, and flexible way for the North Coast region to share in the economic and political benefits of constructive California conveyance and water transfer proposals.

Waterbag technology is unknown in California. Waterbag technology has never been demonstrated in California. Therefore, the "Fear of the Unknown," factor is understandable, but unjustified.

Waterbag technology offers a flexible alternative to many other fixed asset water transfer mechanisms such as land based pipelines, dams, and desalination plants.

It is requested that all the issues discussed in Volume 2. Chapter 5, “Conveyance,” and Chapter 23, “Water Transfers.” be applied to an in-depth analysis of waterbag technology by DWR.

Waterbag technology is a simple and inexpensive technology to test. Waterbag technology can be implemented in modular, flexible stages more economically than land-based pipelines and desalination plants. As the waterbag system begins to prove its reliability and environmental and economic benefits to the water communities that supply and receive the benefits of water transported using waterbag technology, it will simply be a matter of adding more waterbags to the system in order to increase the value of the system to both communities. And adding more waterbags to the system can be under the mutual control of both the water supplier and the water user in order to protect the environment because of the flexibility offered by waterbag technology.

For several years Spragg & Associates has proposed a demonstration of waterbag technology in California. A demonstration of waterbag technology in California will help to address the issues of aesthetics, noise pollution, and other political, environmental and economic concerns that have properly been raised.

Spragg & Associates has recently submitted a proposal for such a test to Governor Schwarzenegger through the office of Terry Tamminen, the Governor’s Cabinet Secretary. This waterbag demonstration proposal will require ZERO CAPITAL INVESTMENT on the part of the State of California. The details of this demonstration proposal are outlined in the October 7, 2004 letter to Curt Schmutte.

It is hoped that California and the DWR will take leadership role in supporting the testing and implementation of waterbag technology as it is being proposed throughout the United States and the world.

AN ANALYSIS OF DWR DESALINATION GRANTS
AND
A WATERBAG DEMONSTRATION PROPOSAL

Recently DWR announced the awarding of $25,000,000 in Desalination Grants to 25 water desalination projects. These grants include pilot projects, demonstration projects, and feasibility studies.

A sample of these grant proposals are worth noting in comparison to the Spragg & Associates waterbag demonstration voyage proposal.

One proposal receiving a 3 year, $1,500,000 DWR grant estimates that it will produce 560 acre feet per year (1.5 acre feet per day) at an eventual total cost of $10,213,000.

Another proposal received a $3,330,000 DWR grant for a project that will eventually produce 10,000 acre-feet per year (28 acre feet per day) at an eventual total cost of $77,000,000.

Another proposal received a $1,500,000 grant to produce 500 acre-feet per year (approximately 1.4 acre feet per day).

One grant for $995,000 was to test a new idea on desalination technology but had no estimate on its potential production volume capability or its eventual economics.

Two other grants, one for $250,000 and one for $900,000 were to design systems that could evaluate and compare alternative water supplies and desalination technologies.

It is hoped that DWR will request that an analysis of waterbag technology be included in both these feasibility study grant awards.

Waterbag technology has the potential to economically deliver several million-acre feet of fresh water to California each year, and to offer a solution to a catastrophic earthquake event in the Delta.

How much time and money has the Department of Water Resources invested in analyzing, developing, and implementing waterbag technology for the State of California? How does this analysis compare to amount of time and money DWR and other California water agencies have invested in analyzing, developing, and implementing desalination technology for the State of California?

Spragg & Associates is offering the State of California the opportunity to test waterbag technology at ZERO CAPITAL COST to California taxpayers. It is hoped that Governor Schwarzenegger and the DWR will publicly support a demonstration of waterbag technology for California.

A WATERBAG EMERGENCY PROPOSAL FOR THE CALIFORNIA DELTA

Recently California earthquakes have made the front pages of newspapers throughout the State and as news stories on all the television network news shows.

Spragg & Associates would like to submit a proposal to test waterbag technology as a tool to be used in case of a catastrophic levee collapse in the Delta caused by a major earthquake on the Hayward fault, and for this proposal to be included for study in the State Water Plan.

In the Autumn 2003 issue of CALIFORNIA COAST AND OCEAN Magazine, in an article titled, *"The Fragile Delta,"* the following statement was made:

> ***"…no comprehensive plans for protecting the Delta [from a catastrophic earthquake event] have been drafted, never mind implemented."***

This past October, a Waterbag Emergency Proposal for the Delta was submitted to Curt Schmutte, Chief, Levees and North Delta Branch at DWR in a letter dated October 4, 2004. This proposal was attached to a letter to Terry Tamminen and Gary Hunt, dated June 13, 2005. Spragg & Associates has had several phone conversations with Curt Schmutte to discuss this proposal. Steve Arakawa, Manager for Water Resources at the Metropolitan Water District of Southern California had a thirty-minute phone conversation with Curt Schmutte to discuss this waterbag Delta emergency proposal.

The validity of the above quote was confirmed in a conversation with Curt Schmutte and Professor Ray Seed, a respected earthquake engineer at U.C. Berkeley, who first suggested that Curt Schmutte be contacted about this proposal. The State Water Plan (Volume 1. page 2-9) states that,

> ***"A catastrophic earthquake in or near the Delta might cause multiple levee failures that would draw seawater into the Delta, rendering the water unfit for irrigation or human consumption until levees were repaired and seawater was flushed from the Delta."***

The State Water Plan, Volume 2, page 3-10 states,

> ***"…failure of one part of the [Delta] network affects operation throughout the [Delta] network"***

Professor Seed stated that a catastrophic levee failure could take up to two years or more to repair, thus severing almost one-half of the water supply for southern California.

In Volume 1, page 2-9, of the State Water Plan it states,

> ***"The CalFed Program proposes actions to…reduce the risk to land use and associated economic activities…from catastrophic breaching of Delta levees."***

On page 2-11 the report states,

> ***"DWR has initiated a multi year study to assess on-going and future risks to the Delta…and evaluate alternative risk strategies and develop a plan for future action."***

On page 2-14 the report states,

> ***"State government should invest in research and development for promising water technologies…State government should also encourage pilot projects…"***

On page 2-9 the report states,

> ***"State government must provide leadership for the CalFed Bay-Delta Program. This will continue our progress toward meeting Cal-Fed objectives of…levee system integrity."***

On page 2-13 the report states,

> ***"California must capitalize on promising technologies. Knowledge from such evaluations allow water managers to make better decisions."***

Because DWR does not have an operational plan in place to address this Delta earthquake emergency danger, Spragg & Associates would like to request that DWR give the waterbag Delta emergency proposal submitted by Spragg & Associates to DWR its serious and immediate attention and support a demonstration of waterbag technology in the Delta and investigate and address this proposal in the State Water Plan.

SUMMARY OF SPRAGG & ASSOCIATES STATE WATER PLAN PROPOSALS

"The biggest challenge for California water resources management remains making sure that water is in the right places at the right time."

Volume 2, Chapter 3, "California Water Today," page 3-5

Waterbag technology offers a significant solution not only to the biggest emergency threat to California's water supply but also a significant solution to what the California Water Plan says is the biggest challenge for California water management.

Waterbag technology is an operational technology. It is not a dream. It is easy and economical to demonstrate, test, analyze, and implement all the technological, economic, environmental, and political considerations associated with waterbag technology. Demonstrations of Spragg & Associates waterbag technology are currently under serious consideration by the United States government as a tool for helping President Bush's "roadmap" efforts in the Middle East. The Australian government is reviewing a waterbag demonstration proposal from Spragg & Associates. Other Spragg & Associates waterbag demonstration proposals are in process in the United States and overseas.

The documents that are being submitted to DWR will give California the opportunity to take a leadership role in developing waterbag technology. MWD has already taken a leadership role in investigating waterbag technology, recently signing two agreements with Spragg & Associates. Spragg & Associates would encourage DWR to coordinate its waterbag investigations with MWD and others, and to support a demonstration of waterbag in California in the Delta and throughout the State.

DWR's support for a demonstration of waterbag technology in California will help to promote an integrated regional management plan and can be used to promote regional partnerships between northern and southern California water interests, which is the stated goal of the California Water Plan.

Spragg & Associates urges the DWR to take a proactive position on investigating waterbag technology and to support a demonstration of waterbag technology in California in order to implement a multitude of positive results that waterbag technology can offer the entire State of California.

DWR should be leaders, not followers, in studying, endorsing and implementing waterbag technology in California.

Spragg & Associates looks forward to establishing a direct, open and positive working relationship with DWR officials.